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10/540,793	12/27/2005	Xiaoling Shao	CN020031	7157

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EXAMINER	
RICE, ELISA M	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/540,793	SHAO ET AL.	
	Examiner	Art Unit	
	Elisa M. Rice	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-24 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Katagiri et al. Embodiment B-7 (US 2003/0001818 A1).

Regarding claim 1, Katagiri et al. Embodiment B-7 discloses a handwriting recognition method, comprising the steps of:

1) calculating corresponding 3D coordinates (Katagiri, Fig. 11, num. 122, "Coordinate Computation Means") based on 3D motion data (Katagiri, Fig. 11, num. 130):

2) constructing corresponding 3D tracks based on 3D coordinates (Katagiri, paragraph 0294, "interconnection of respective coordinates")

3) deriving 2D projection plane based on the 3D tracks which have been inputted (Katagiri, paragraph 294); and

4) generating 2D image for handwriting recognition by mapping the 3D tracks onto the 2D projection plane (Katagiri, paragraph 292) when the user inputs the rest of 3D motion data (Katagiri, paragraph 0295, second sentence). The display is a 2D projection plane.

Regarding claim 2, Katagiri Embodiment B-7 discloses the method of claim 1, further comprising a step of generating 3D motion data by tracking corresponding 3D motion before step 1) (Katagiri, Fig. 11, num. 112, "Image Data")

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Okahara (2001/0004254 A1).

Regarding claim 3, while Katagiri Embodiment B-7 discloses the method of claim 2, Katagiri Embodiment B-7 does not further disclose the method comprising a step of adjusting the sampling rate dynamically based on the motion speed between the step of generating 3D motion data by tracking corresponding 3D motion and the step of calculating corresponding 3D coordinates based on 3D motion data.

Okahara teaches wherein the recognition device further includes means for adjusting the sampling rate dynamically based on the motion speed (Okahara, paragraph 27).

It would have been obvious to one of ordinary skill in the art to modify the invention of the combination of Kitigara Embodiment B-7 to include means for adjusting the sampling rate dynamically based on the motion speed as taught by Okahara in order "adjust the amount of point information transmitted" (Okahara, paragraph 23).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Katagiri Embodiment A-1 (US 2003/0001818 A1).

Regarding claim 4, while Katagiri Embodiment B-7 discloses the method of claim 1, Katagiri Embodiment B-7 does not further comprise a step of performing 2D handwriting recognition based on the 2D image after step 4).

Kitigara Embodiment A-1 teaches wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images (Kitigara, paragraph 163 ; Kitigara, Fig. 1).

It would have been obvious to one of ordinary skill in the art to modify the invention of Kitgara Embodiment B-7 to include a means for performing 2D handwriting recognition based on the 2D images as taught by Kitigara Embodiment A-1 because the level of accuracy depends (and concomitant processing needs) on the level of security, which is case dependent as show in paragraph 238 quoted below:

"When the user has written a signature in midair, the handwritten data can be utilized as signature data which are to become an object of personal identification. Particularly in this case, the signature data are three-dimensional data, and hence there can be realized personal identification which is higher in accuracy than that obtained from two-dimensional data."

Claims 5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Tang et al. (US 2002/0168107 A1).

Regarding claim 5 and 8, Katagiri Embodiment B-7 discloses the method of claim 1. Further, Katagiri Embodiment B-7 teaches inputting the 3D tracks (Katagiri, paragraph 294).

Katagiri Embodiment B-7 does not disclose wherein step 4) further comprises the steps of:

A) finding out the distinguishable strokes

B) deriving 2D projection plane based on the said distinguishable strokes or part of them, wherein said distinguishable strokes in step B) is the first two distinguishable strokes.

Tang teaches wherein step 4) further comprises the steps of:

A) finding out the distinguishable strokes (Tang, Fig. 1, num. 11).

B) deriving 2D projection plane based on the said distinguishable strokes or part of them, wherein said distinguishable strokes in step B) is the first two distinguishable strokes (Tang, paragraph 0108).

It would have been obvious to one of ordinary skill in the art to modify the invention of Katagiri to include the method of displaying the first two distinguishable strokes as taught by Tang in paragraph 13 because "so the users are able to input the handwritten Chinese character without the need of finishing writing all the strokes of the Chinese character."

Claim 6 is rejected under 35 U.S.C. 103(a) as being obvious over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Tang et al. (US 2002/0168107 A1) as applied to claim 5, and further in view of Brown et al. (US 5,878,164).

Regarding claim 6, the combination of Katagiri and Tang discloses the method of claim 5, further disclosing wherein step A) comprises the steps of: a) finding out two different strokes (Tang, Fig. 1, num. 11);

The combination of Katagiri and Tang does not disclose the step of b) determining whether the average distance of the said two strokes is distinguishably qualified.

Brown teaches a method of determining whether the distance of the said two strokes is distinguishably qualified, wherein the average distance of said two distinguishable strokes in step b) is greater than a predetermined positive value. (Brown, column 2, lines 30-44).

It would have have been obvious to one of ordinary skill in the art to modify the invention of Katagiri and Tang to include the method of determining whether the distance of the said two strokes is distinguishably qualified in order to "improve handwriting recognition by proper segmentation of a handwriting sample." The improvement in segmentation is provided by using the distance measurement to more accurately identify discontinuous or separate strokes as demonstrated by the following passage in the Brown reference at column 2 from lines 35 to 44 : "Where the spatial distance is greater than the threshold value the alternative accumulated hypothesis scores are biased toward those scores indicating that the two successive strokes are discontinuous, by adding a penalty score to those alternative hypothesis scores indicating a continuous stroke. Where the spatial distance is less than the threshold value, the alternative hypothesis scores are biased towards two discontinuous strokes, by adding a penalty to those alternative hypothesis scores indicating that the two successive strokes are continuous."

Claim 9, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Tang et al. (US 2002/0168107 A1) and Brown et al. (US 5,878,164).

Regarding claim 9,the combination of Katagiri, Tang, and Brown discloses the method of claim 6, wherein finding out two strokes in step a) is based on determining whether the motion direction of 3D tracks is changed (Tang, paragraph 13).

Regarding claim 10, the combination of Katagiri, Tang, and Brown discloses the method of claim 6, wherein the average distance of said two distinguishable strokes in step b) is greater than a predetermined positive value (Brown, column 2, lines 30-44).

Regarding claim 12, the combination of Katagiri, Tang, and Brown discloses the method of claim 9, wherein determining whether the motion direction is changed allows less than N consecutive points move in different direction from prior points, N is a predetermined natural number (Tang, paragraph 13).

Claim 7 is rejected under 35 U.S.C. 103(a) as being obvious over Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Tang et al. (US 2002/0168107 A1) as applied in claim 5, and further in view of Stewart et al. (US 20020023061 A1).

Regarding claim 7, the combination of Katagiri and Tang discloses the method of claim 5. The combination of Katagiri and Tang does not disclose wherein step B) of deriving further comprising a step of deriving 2D projection plane as a plane to which the sum of the distance square of every sampling points is minimal, wherein the step of deriving 2D

projection plane as a plane to which the sum of the distance square of every sampling points is minimal can employ the LaGrange multiplication method.

Stewart teaches a method comprising a step of deriving 2D projection plane as a plane to which the sum of the distance square of every sampling points is minimal, wherein the step of deriving 2D projection plane as a plane to which the sum of the distance square of every sampling points is minimal can employ the LaGrange multiplication (Stewart, paragraph 360).

It would have been obvious to one of ordinary skill in the art to modify the invention of Katagiri and Tang to include the method of deriving a 2D projection plane as a plane to which the sum of the distance square of every sampling point is minimal which is accomplished by the LaGrange multiplication in order to "generate an interpolated output" where there are" insufficient points to define a plane" because "projection of this line onto the input space defines a lower-dimensional subspace S of the input space" (Stewart, paragraph 360).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri et al. Embodiment B-7 (US 2003/0001818 A1), Tang et al. (US 2002/0168107 A1) and Stewart et al. (US 20020023061 A1).

Regarding claim 11, the combination of Katagiri Embodiment B-7, Tang, and Stewart discloses the method of claim 7, wherein the step of deriving 2D projection plane as a plane to which the sum of the distance square of every sampling points is minimal can employ the LaGrange multiplication method (Stewart, paragraph 360).

Claims 13, 15, 17, 19, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Baron et al. (WO 95/21436).

Regarding claim 13 and 21, Kitigara Embodiment B-7 discloses a handwriting recognition system, comprising:
an input device and a recognition device, in communication with the input device, to receive the 3D motion data and derive the 2D images for handwriting recognition based on 3D motion data (Kitigara, Fig. 11).

Kitigara Embodiment B-7 does not disclose an input device (Pen 10 in Figure 1; page 7, first paragraph) including a 3D motion detection sensor (Baron, page 7, second paragraph) to generate 3D motion data in response to 3D motion.

Baron teaches an input device including a 3D motion detection sensor to generate 3D motion data in response to 3D motion (Baron, page 7, second paragraph; Pen 10 in Figure 1; page 7, first paragraph).

It would have been obvious to one of ordinary skill in the art to modify the invention of Kitigara Embodiment B-7 to include an input device with a 3D motion detection sensor as taught by Baron in order to reduce the need for external equipment.

Regarding claim 15, the combination of Kitigara Embodiment B-7 and Baron discloses the system of claim 13, wherein the recognition device includes the means (Kitigara, paragraph 187) for calculating corresponding 3D coordinates based on the 3D motion data (Katagiri, Fig. 11, num. 122, "Coordinate Computation Means"; Katagiri, Fig. 11, num. 130); means for constructing corresponding 3D tracks based on the 3D coordinates (Katagiri, paragraph 0294, "interconnection of respective coordinates"); and means for deriving the corresponding 2D images from the 3D tracks (Katagiri, paragraph 0295, second sentence).

Regarding claims 17, the combination of Kitigara Embodiment B-7 and Baron discloses the system of claim 15,wherein the means for deriving the corresponding 2D images from the 3D tracks further includes means for mapping the 3D tracks onto a 2D plane to derive the 2D images for handwriting recognition (Katagiri, paragraph 295, second sentence).

Regarding claim 19, the combination of Kitigara Embodiment B-7 and Baron discloses the system of claim 13, wherein the input device further includes a control circuit, responsive to a user's command, to generate a control signal transmitted to the

recognition device indicating the completion of writing a word or character (Kitigara, paragraph 311).

Regarding claim 23, the combination of Kitgara Embodiment B-7 and Baron disclose the system of claim 21, wherein the recognition device includes: means for calculating corresponding 3D coordinates based on the 3D motion data (Katagiri, Fig. 11, num. 122, "Coordinate Computation Means"; Katagiri, Fig. 11, num. 130); means for constructing corresponding 3D tracks based on the 3D coordinates (Katagiri, paragraph 0294, "interconnection of respective coordinates"); and means for deriving the corresponding 2D images from the 3D tracks (Katagiri, paragraph 0295, second sentence).

Claim 14 is rejected under 35 U.S.C. 103(a) as being obvious over Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Baron et al. (WO 95/21436) as applied to claim 13, and further in view of Katagiri Embodiment A-1 (US 2003/0001818 A1).

Regarding claims 14, while the combination of Kitigara Embodiment B-7 and Baron disclose the system of claim 13, Kitigara Embodiment B-7 does not include wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images.

Kitigara Embodiment A-1 teaches wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images (Kitigara, paragraph 163 ; Kitigara, Fig. 1).

It would have been obvious to one of ordinary skill in the art to modify the invention of Kitgara Embodiment B-7 and Baron to include a means for performing 2D handwriting recognition based on the 2D images as taught by Kitigara Embodiment A-1 because the level of accuracy depends (and concomitant processing needs) on the level of security, which is case dependent as show in paragraph 238 quoted below:

"When the user has written a signature in midair, the handwritten data can be utilized as signature data which are to become an object of personal identification. Particularly in this case, the signature data are three-dimensional data, and hence there can be realized personal identification which is higher in accuracy than that obtained from two-dimensional data."

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Katagiri et al. Embodiment B-7 (US 2003/0001818 A1), Baron et al. (WO 95/21436), and Katagiri Embodiment A-1 (US 2003/0001818 A1).

Regarding claim 20, the combination of Kitigara Embodiment B-7, Baron, and Kitigara Embodiment A-1 discloses the system of claim 14, further comprising an output device for displaying the final result of handwriting recognition (Fig. 11, num. 160).

Claim 22 is rejected under 35 U.S.C. 103(a) as being obvious over Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Baron et al. (WO 95/21436) as applied to claim 21, and further in view of Katagiri Embodiment A-1 (US 2003/0001818 A1).

Regarding claim 22, while the combination of Katagiri Embodiment B-7 and Baron discloses the system of claim 21, the combination of Katagiri Embodiment B-7 and Baron does not disclose wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images.

Kitigara Embodiment A-1 teaches wherein the recognition device includes means for performing 2D handwriting recognition based on the 2D images (Kitigara, paragraph 163 ; Kitigara, Fig. 1).

It would have been obvious to one of ordinary skill in the art to modify the invention of Kitgara Embodiment B-7 and Baron to include a means for performing 2D handwriting recognition based on the 2D images as taught by Kitigara Embodiment A-1 because the level of accuracy depends (and concomitant processing needs) on the level of security, which is case dependent as show in paragraph 238 quoted below:

"When the user has written a signature in midair, the handwritten data can be utilized as signature data which are to become an object of personal identification. Particularly in this case, the signature data are three-dimensional data, and hence there can be realized personal identification which is higher in accuracy than that obtained from two-dimensional data."

Claims 16 is rejected under 35 U.S.C. 103(a) as being obvious over Katagiri et al. Embodiment B-7 (US 2003/0001818 A1) and Baron et al. (WO 95/21436) as applied in claim 15, and further in view of Okahara (2001/0004254 A1).

Regarding claim 16, while the combination of Kitigara Embodiment B-7 and Baron discloses the system of claim 15, the combination of Kitigara Embodiment B-7 and Baron does not disclose wherein the recognition device further includes means for adjusting the sampling rate dynamically based on the motion speed.

Okahara teaches wherein the recognition device further includes means for adjusting the sampling rate dynamically based on the motion speed (Okahara, paragraph 27).

It would have been obvious to one of ordinary skill in the art to modify the invention of the combination of Kitigara Embodiment B-7 and Baron to include means for adjusting

the sampling rate dynamically based on the motion speed as taught by Okahara in order "adjust the amount of point information transmitted" (Okahara, paragraph 23).

Claim 18 is rejected under 35 U.S.C. 103(a) as being obvious over Katagiri et al. Embodiment B-7 (US 2003/0001818 A1), Baron et al. (WO 95/21436) as applied to claim 17, and further in view of Stewart et al. (US 20020023061 A1).

Regarding claim 18, while the combination of Kitigara Embodiment B-7 and Baron discloses the system of claim 17, the combination of Kitigara Embodiment B-7 and Baron does not disclose wherein the deriving means further includes means for deriving 2D projection plane as a plane to which the sum of the distance square of every sampling points is minimal.

Stewart teaches a method comprising a step of deriving 2D projection plane as a plane to which the sum of the distance square of every sampling points is minimal (Stewart, paragraph 360).

It would have been obvious to one of ordinary skill in the art to modify the invention of the combination of Kitigara Embodiment B-7 and Baron to include a method of deriving a 2D projection plane as a plane to which the sum of the distance square of every sampling point is minimal which is accomplished by the LaGrange multiplication in order to "generate an interpolated output" where there are" insufficient points to define a

plane" because "projection of this line onto the input space defines a lower-dimensional subspace S of the input space" (Stewart, paragraph 360).

Regarding claim 24, the combination of Kitigara Embodiment B-7 and Baron discloses the system of claim 23, wherein the deriving means includes means for mapping the 3D tracks onto a 2D plane to derive the 2D images for handwriting recognition (Katagiri, paragraph 295, second sentence).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elisa M. Rice whose telephone number is (571)270-1582. The examiner can normally be reached on 8:00a.m.-5:30p.m. EST Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian P. Werner can be reached on (571)272-7401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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2624

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